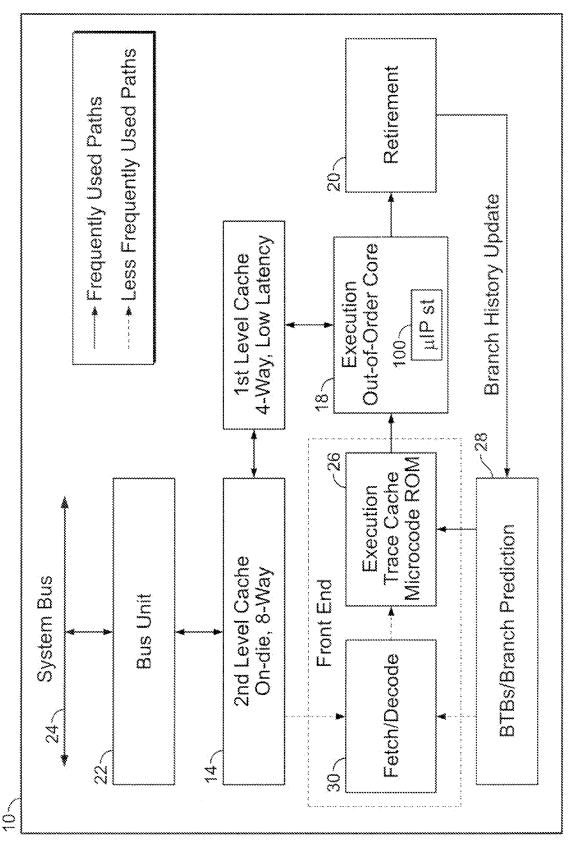Replacement Sheet 1 of 4
Appln No.: 10/032,154
Applicant(s): Michael P. Cornaby et al.
MICROINSTRUCTION POINTER STACK INCLUDING
SPECULATIVE POINTERS FOR OUT-OF-ORDER
EXECUTION

FIG. 1

Replacement Sheet 2 of 4
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MICROINSTRUCTION POINTER STACK INCLUDING
SPECULATIVE POINTERS FOR OUT-OF-ORDER
EXECUTION

50

52
Basic Program Execution Registers

62
General Purpose Registers

64
Segment Registers

66
E Flags Registers

68
E IP Registers

$2^{32}-1$

54
Address Space

0

56
FPU Registers

70
Floating-Point Data Registers

72 Control Registers

74 Status Registers

80 Tag Registers

82 OPCode

76
FPU Instruction Pointer Register

78
FPU Data Pointer Register

58
MMX Registers

60
SME and SSEZ Registers

84
XMM Registers

86
MXCSR Registers

FIG. 2

Replacement Sheet 3 of 4
Appln No.: 10/032,154
Applicant(s): Michael P. Cornaby et al.
MICROINSTRUCTION POINTER STACK INCLUDING
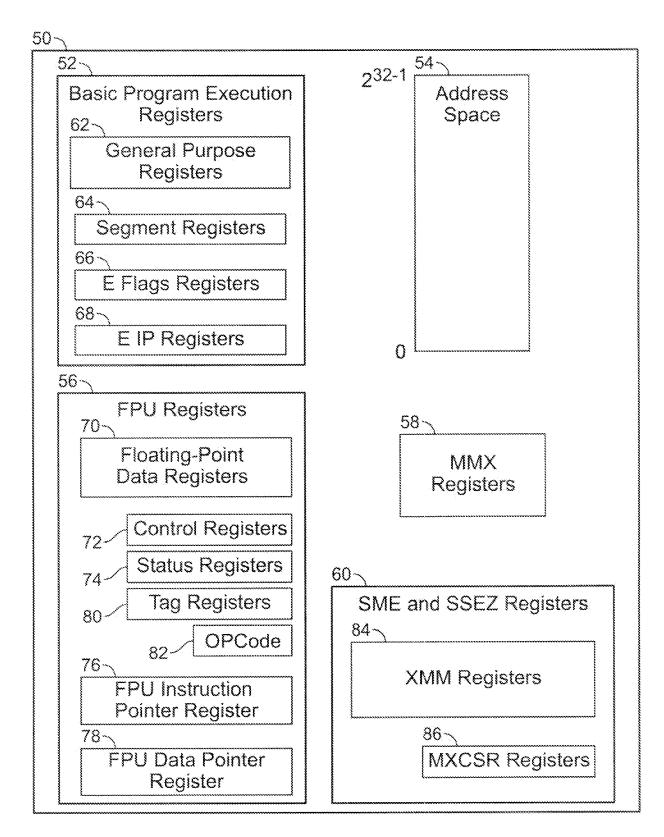SPECULATIVE POINTERS FOR OUT-OF-ORDER
EXECUTION

100 ⟍

Entry	104 ⟍ μIP	106 ⟍ Back Ptr	108 RD	RI	102 ⟍ Ret Ptr
0					
1					
2					
3					
4					
5					
Null	0	Null	0	0	
n			0	0	
n+1			0	0	
n+2			0	0	
n+3			0	0	
n+4			0	0	

110 ⟍ μ TOS Pointer

112 ⟍ μ Alloc Pointer

114 ⟍ Next Ret Pointer

116 ⟍ μ Ret TOS Pointer

FIG. 3

Replacement Sheet 4 of 4
Appln No.: 10/032,154
Applicant(s): Michael P. Cornaby et al.
MICROINSTRUCTION POINTER STACK INCLUDING
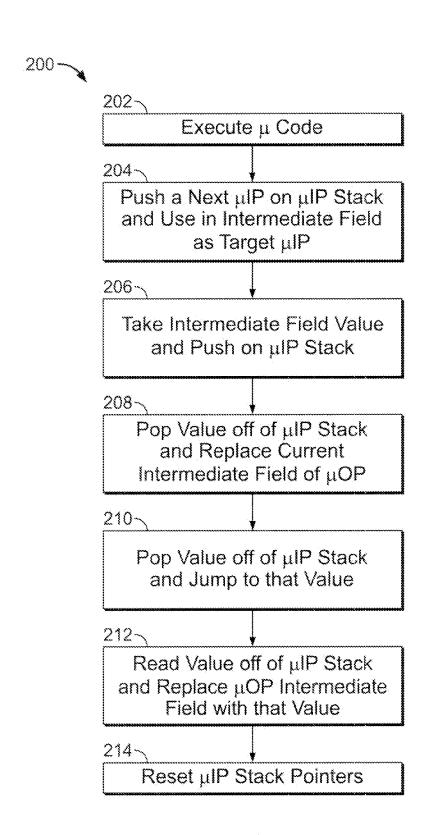SPECULATIVE POINTERS FOR OUT-OF-ORDER
EXECUTION

200

202
Execute μ Code

204
Push a Next μIP on μIP Stack
and Use in Intermediate Field
as Target μIP

206
Take Intermediate Field Value
and Push on μIP Stack

208
Pop Value off of μIP Stack
and Replace Current
Intermediate Field of μOP

210
Pop Value off of μIP Stack
and Jump to that Value

212
Read Value off of μIP Stack
and Replace μOP Intermediate
Field with that Value

214
Reset μIP Stack Pointers

FIG. 4